

## The Conquest of Thought

Ivor Catt

**Ivor Catt claims that the Establishment response to a new theory is to re-state the old one in the belief that there is a lack of understanding.**

"It is the sphere farthest removed from the concreteness of society which may show most clearly the extent of the conquest of thought by society."

*One Dimensional Man*, by H. Marcuse

"Emerson truly said that society is a conspiracy against the independence of each of its members."

*Originality*, by T.S. Knowlson

In his book "*One Dimensional Man*", Herbert Marcuse discusses the prevailing drive that tends to reduce all varieties of temperament and desire to one universal system of thought and behaviour. He believes that the source of this drive is technology. "The technological controls appear to be the very embodiment of Reason for the benefit of all social groups and interests - to such an extent that all contradiction seems irrational and all counteraction impossible."

Marcuse sees science-technology as a monolithic force which is in the process of engulfing his society.

I have been excited to find that the totalitarian mechanisms which he says make "The intellectual and emotional refusal 'to go along' appear(s) neurotic and impotent" are also, perhaps unknown to Marcuse, effective in suppressing dissidence (and therefore progress) within science itself.

Marcuse is a philosopher and may not be in a position to know about the totalitarian suppression of alternative, richer views in science, partly because Establishment science suppresses evidence of discord within itself. He knows that Functionalism, which he also calls Operationalism, reduces the possibility of communication of ideas, but may not know that this suppression is also occurring within science-technology itself. He describes Operationalism as follows:

"...to make the concept synonymous with the corresponding set of operations . ...This technological reasoning, tends 'to identify things and their functions.'" He cites an example from within science of a reductionist, or operationalist, definition, in this case of the term "length".

...The concept of length is therefore fixed when the operations by which length is measured are fixed: that is, the concept of length involves as much and nothing more than the set of operations by which length is determined. ...the concept is synonymous with the corresponding set of operations."

Marcuse, the political philosopher, only sees the disastrous effect of this kind of (behaviourist) attitude when imposed upon the non-scientific society that he cherishes. He may not know about the damage it inflicts on science-technology itself.

In an editorial "*The map is not the territory*" in February 1979, Tom Ivall, then editor of *Wireless World*, discussed this kind of confusion, but to little avail. A recent example of many such confusions is in the recent 'Joules Watt' articles, where the author clearly thinks that vector algebra, the operation, is synonymous with the concept of electromagnetism. In the subtitle of his August 1987 article the distinction between vector algebra and electromagnetic fields is fogged by the use of the hybrid phrase "vector field theory".\* In a later editorial, "The decline of the philosophical spirit", it was said that whereas in the nineteenth century scientists were interested in whether a mathematical construct did or did not have a basis in physical reality, today scientists no longer care. Under the destructive philosophy of science today, called "Instrumentalism" by [Karl Popper](#) (*Conjectures and Refutations*, RKP 1965,), the distinction is blurred anyway. I see Bohr's Correspondence Principle as part of the destructive philosophy.

I attempted to satirize the idea that mathematical constructs were equally important whether or not they were based on anything physically real when I developed the concept of "circularity" by mathematically manipulating the circumference, area and diameter of a circle.\*\* However, Bohr's Correspondence Principle is only used to retain bogus concepts which arose during this century, not to reinstate bogus concepts from the past, like phlogiston, and also not to permit the frivolous introduction of no less valid new concepts like circularity. The Correspondence Principle, magically, only applies in cases when its application will smooth the career path of entrenched professors operating today. T.S. Kuhn says that had Bohr's Correspondence Principle held sway at the time, oxidation would not have succeeded in suppressing the preceding theory of phlogiston, and we would still be teaching phlogiston in our classes today. (T.S. Kuhn, *The Structure of Scientific Revolutions*, Univ. of Chicago Press, 1970, p99. [Also note middle of p96. IC, 3jan01]). However, Kuhn admits that today his (and mine) is a minority view. And Joules Watt, July 1987, paragraph 3, has the temerity to claim that Kuhn supported him in clinging to the past, paraphrasing Kuhn in a manner directly opposite to what Kuhn actually says in the previously quoted book.

In the 1970s, my co-researcher and I made major advances in electromagnetic theory, but were astonished to encounter resentment, obstruction and suppression when we proceeded to try to communicate our discoveries. After much travail, we succeeded in publishing the first part of our discoveries, entitled "Displacement current", in *Wireless World*, December 1978. The total Establishment response was [ [from UKAEA Culham](#) and] a reply, "No radio without displacement current", in *Wireless World*, August 1979, by D.A. Bell, Professor of Electrical Engineering at Hull University and previously Reader in Electromagnetism in Birmingham University. During the next ten years, although articles and letters discussed our theories in nearly every issue of *Wireless World*, there was no further response of any significance from Establishment figures until the July 1987 article "Maxwell's e.m. theory revisited" by a university lecturer, 'Joules Watt', who specializes in electromagnetic theory.

Both Bell\*\*\* and J.W., although clearly replying to Catt theories, never reference Catt or his writings. Also, in both cases, they merely re-state the classical position. It is not possible to point to anything in their writings



where they relate in any way to the new theory. Their writing is a total regression to the time before the Catt theory was propounded.

We can understand this behaviour if we study the theory of [MacRoberts and MacRoberts](#) , (MM), and develop their ideas a

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\* This term was not due to Joules Watt, but was inserted at the sub-editing stage- Ed, EWW.

\*\* I Catt, Electromagnetic Theory Vol 1, C.A.M. Publishing 1979, p47, 79.

\*\*\* Recently, Bell has written that the Aug. 79 article was not a reply to my Dec. 78 article.

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little further\*. MM say that during a scientific revolution, which Kuhn calls a shift to a new paradigm, the Establishment prerevolutionaries appraise the quality of any attempts to communicate the new theory in terms of the old theory.

[See also Polanyi\*\*, *Personal Knowledge*, p151. In his Preface, page vi, Kuhn does credit other sources (although I do not know what they contain). He was entitled to omit Polanyi (1958) from his own book when it was first published in 1962, since it followed only four years after. Kuhn was however very naughty not to credit Polanyi in Kuhn's *Postscript-1969* at the end of the Kuhn book. After a gap of 10 years, Kuhn either knew that Polanyi was there first in 1958 with the *paradigm*, or he should have known. Polanyi p151 closely resembles Kuhn. Kuhn is part of a more general failure to appreciate Polanyi. Ivor Catt, 3jan01.]

[3jan01. The editor reduced the MM graphs from 3 to 1, and so bungled them. The full set of three graphs is essential to their argument. See [MacRoberts and MacRoberts](#) . The third, crucial graph shows each paradigm as a little hillock in a 3D graph, each hillock having a normal distribution of quality from bad to mediocre to good to excellent, with the main bulk of proposed articles in the large, mediocre hump. This is equivalent to judging Asian music in its own terms, and European music in its own terms. The Establishment is entrenched within one hillock. Revolutionaries comprehend two hillocks, and use different criteria in judging a contribution, depending on its avowed paradigm. The Establishment merely uses the European criteria, and thinks that the shoddy Asian composer is attempting, and failing, to compose within European precepts. Ivor Catt 3jan01.]

In a graphical illustration of the problem (Fig.1 [discussed above]), they show that any attempt to communicate the new theory will be adjudged a shoddy contribution, and so rejected for publication in any reputable journal. MM say that there is asymmetry. The old Establishment scientists do not comprehend the new paradigm, whereas the revolutionaries comprehend both paradigms, the one they reject and also the new one that they propose. (It is difficult to attach meaning to a process of rejecting a theory that one does not understand.) Any communication of the new paradigm will fall off the curve, out of the range of good communications based on the old paradigm, and so will always be rejected by journal referees - every attempt by me to publish any article on electromagnetism has been rejected by every referee of every learned journal in Britain during the past ten years. [This is now 26 years. IC July 2013.]

What MM do not discuss is the symmetry in the structure during a revolution. The revolutionaries know that the Establishment do not understand their revolutionary theory. But also, the Establishment believe that the revolutionaries do not understand the established theory. They further believe that the very existence of the new theory is a result of

failure of comprehension of the old (for them perfectly good) theory. This explains why, in the Establishment replies, it is deemed necessary only to re-state the old theory, as clearly as possible, and unnecessary to refer at all to the new theory. Also, this explains why their replies are littered with hints, or even assertions, that there is a major problem of comprehension in this particular subject.

*"Maxwell ...was at home with the mathematics of vectors..." - D.A.Bell August 1979.*

*"To understand why there are four of Maxwell's equations, we must look at..." -D.A.Bell August 1979.*

*"You ought to know a little about the accepted norm." J.W. July 1987.*

*"...those - curls and things .... - do seem to remain unpopular with students, probably the reason is bad teaching again..." J.W. July 1987.*

*"....a student friend... said that... he still couldn't see the wood for the trees. 'You see', he went on, 'I'm none the wiser about what curl and div - to say nothing of grad - really mean... we had a ghastly maths course about them. That course is still a poor one, you know.'" - J.W. August 1987.*

*".... a surprising number of quite senior engineers and technicians also tend to avoid complex numbers if they can, when working out problems." -J.W. September 1987.*

*"People in this unfortunate situation have to face the fact that Fourier and Laplace transforms, Bode plots, poles and zeros, frequency and phase response, many differential equations, Smith charts - and even common old impedance itself all remain a closed book," J.W. September 1987.*

None of the constructs (except impedance) mentioned in the last four quotations receive any mention in any of my writings, except when I satirize them (e.g. November 1985). I regard them as not relevant to the theory of electromagnetism, but the Establishment, noting their absence, assumes either that I am unfamiliar with them or incompetent with them, and proceeds to give me (and you) lessons in them. Truly a dialogue of the deaf, as outlined by Polanyi and Kuhn.

[I have just begun to read Maxwell's Treatise. The first 30 pages show how, when he thought he was making the subject more rigorous by brewing up the maths and placing it over Faraday's ideas, unknown to himself, he was in fact entrenching false assumptions which could not then be extricated in the face of Professors besotted with the maths, and the facility it gives them to "teach" and "examine" in the subject without themselves having a physical grasp of it. Thus, generations of mathematical high-wire artists with no grasp of the physics have given each other qualifications and jobs and copied each other's books. The reason why they will not comment on the Catt Anomaly is that it is a purely physical problem which cannot be buried under a mathematical collage. (A glance at my own books will show that I can brew up much longer equations than the lot of them, none of which equations any of them have been able to fault. My attitude does not result from mathematical incompetence; quite the reverse. My mother's spectacular career in mathematics {Enid Jones, London University Lubbock Prize 1924 when aged 20} and my own early successes in maths led me to question its purpose, rather than to bask in it for the rest of my life and ignore physical reality. See my article *A Mathematical Rake's Progress*, EWW jan86.) Ivor Catt. 3jan01]

The solution to the conundrum, that Bell claims he was not replying in August 1979 to the Catt article of December 1978, is that the way the Establishment replies to a new theory is to restate the old theory, and so his claim arises out of semantic ambiguity.

\* *The Scientific Referee System*, Speculations in Science and Technology, Vol. 3, No 5, 1980, p573-578.

\*\* M Polanyi, *Personal Knowledge*, RKP, T.S.Kuhn, T.S. Kuhn, *The Structure of Scientific Revolutions*, Univ. of Chicago Press., pp109, 132,148

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